CLAIMS

We Claim:

1. A composition comprising at least one carotenoid and at least one phospholipid, wherein the carotenoid comprises at least 1% of the total mass and the phospholipid comprises at least 5% of the total mass, and the ratio of carotenoid to phospholipid is from about 1:100 to about 1:0.01.

2. The composition of Claim 1, wherein the carotenoid has a microbial source.

3. The composition of Claim 2, wherein the microbial source is chosen from *Phaffia*, *Haematococcus,* Schizochytrium and *Paracoccus*.

4. The composition of Claim 1, wherein the carotenoid is chosen from astaxanthin, zeaxanthin, canthaxanthin, lutein, beta-carotene, and lycopene.

5. The composition of Claim 1, wherein the carotenoid is synthetic.

6. The composition of Claim 1, wherein the phospholipid comprises more than about 20% polyunsaturated fatty acids having two or more double bonds.

7. The composition of Claim 1, wherein the phospholipid comprises more than about 10% polyunsaturated fatty acids having three or more double bonds.

8. The composition of Claim 1, wherein the phospholipid comprises more than about 10% polyunsaturated fatty acids having four or more double bonds.

9. The composition of Claim 1, wherein the phospholipid comprises more than about 20% polyunsaturated fatty acids having four or more double bonds.

10. The composition of Claim 1, wherein the phospholipid is of microbial origin.

11. The composition of Claim 1, wherein the phospholipid is an egg lecithin.

12. The composition of Claim 1, wherein the phospholipid has an origin chosen from fish, crustacean, and shellfish.

13. The composition of Claim 1, wherein the phospholipid is of mammalian origin.

14. The composition of Claim 13, wherein the phospholipid is of mammalian brain origin.

15. The composition of Claim 1, wherein the ratio of carotenoids to phospholipids is from about 1:50 to about 2:1.

16. The composition of Claim 1, wherein the ratio of carotenoids to phospholipids is from about 1:10 to about 1:1.

17. The composition of Claim 1, wherein the ratio of carotenoids to phospholipids is from about 1:5 to about 1:1.

18. An animal feed comprising the composition of any of Claims 1 to 17, wherein the carotenoid content is between about 0.1 mg and about 1000 mg per kg of feed.

19. The composition of Claim 18, wherein the animal is an aquatic animal.

20. The composition of Claim 19, wherein the aquatic animal is typically cultured below a temperature of 20°C.

21. The composition of Claim 19, wherein the aquatic animal is a fish.

22. The composition of Claim 19, wherein the aquatic animal is a crustacean.

23. The composition of Claim 18, wherein the animal is a terrestrial animal.

24. The composition of Claim 23, wherein the terrestrial animal is a bird.

25. A method of pigmenting an animal or animal-derived product, comprising providing a feed as described in Claims 18-24.

26. The method of Claim 25, wherein the animal-derived product is chosen from an egg and a processed egg product.

27. The method of Claim 25, wherein the animal or animal-derived product is chosen from a whole animal, the processed flesh of an animal, and a processed animal product.

28. A method of preparing an animal feed, feed supplement, or feed ingredient by
(a) first mixing at least one carotenoid and at least one phospholipid, wherein the carotenoid comprises at least 1% of the total mass and the phospholipid comprises at least 5% of the total mass, wherein the ratio of the carotenoid to phospholipid is from about 1:100 to about 1:0.01; and
(b) then combining the carotenoid/phospholipid mixture with animal feed, feed supplement, or feed ingredient to provide a final carotenoid content between about 0.1 mg and about 1000 mg per kg; and
(c) then processing the feed, feed supplement, or feed ingredient into a deliverable form.

29. A method as in Claim 28, wherein the deliverable form comprises a pelleted feed.

30. A method as in Claim 28, wherein more than one carotenoid is mixed with the phospholipid.

32. A method of preparing an animal feed by:
(a) first mixing at least one carotenoid and at least one phospholipid, wherein the carotenoids comprise at least 1% of the total mass and the total phospholipids comprise at least 5% of the total mass, and the ratio of the carotenoid to phospholipid is from about 1: 00 to about 1: 0.01;
(b) then combining the mixture with a carrier in a ratio of about 1 to about 100 parts carrier:mixture; and
(c) then coating standard feed pellets with a composition comprising the mixture and the carrier.

33. The method of Claim 32, wherein the carrier comprises an oil.

34. The method of Claim 32, wherein the coating comprises a top coating.